AN ACCOUNT OF THE PANDALOID SHRIMPS (CRUSTACEA: DECAPODA: CARIDEA) IN THE COLLECTIONS OF THE QUEENSLAND MUSEUM

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The pandaloid shrimp collection of the Queensland Museum was critically examined and re-identified. Of the 30 species represented, seven were found to be new distributional records for Australia, viz.: *Chlorocurtis jactans* (Nobili, 1904), *Plesionika albocristata* Chan & Chuang, 2002, *Plesionika crosnieri* Chan & Yu, 1991, *Plesionika echinicola* Chan & Crosnier, 1991, *Plesionika izumiae* Omori, 1971, *Plesionika narval* (Fabricius, 1787), *Plesionika sindoi* (Rathbun, 1906). A further 10 species are new records for Queensland waters. *Pandalus (Parapandalus) leptorhynchus gibber* Hale, 1924 is established as a new junior subjective synonym of *Chlorotocella gracilis* Balss, 1914. ❐ *Caridea, Pandaloidea, Pandalidae, Thalassocarididae, new records, new synonym, Queensland.*

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The collection of the Queensland Museum, South Brisbane, includes a reasonably large collection of caridean shrimps, collected mainly from off Queensland and adjacent waters. The bulk of the samples were collected by surveys undertaken between 1979 to 1988 by the Queensland Fisheries Service (QFS) [now the Queensland Department of Primary Industries and Fisheries], and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) using the research vessels *Soela*, *Southern Intruder*, *Southern Surveyor*, *Valkyrie Voyager*, *Gwendoline May* and *Craignin*. The present paper reports the results of taxonomic research on these specimens.

Measurements are of post orbital carapace length unless otherwise stated. Abbreviations: cl = carapace length; Cr. = Cruise; QFS = Queensland Fisheries Service; QM = Queensland Museum; SAM = South Australian Museum; Qld = Queensland; NSW = New South Wales; SA = South Australia; WA = Western Australia.

TAXONOMY

Family Pandalidae

Chlorocurtis jactans (Nobili, 1904) (Fig. 1A)

Virbius (?) *jactans* Nobili, 1904: 230; 1906: 37, pl. 2, fig. 2.
Chlorocurtis miser Kemp, 1925: 280.
Chlorocurtis jactans: Holthuis, 1955: 128, fig. 91; 1993: 265, fig. 262; Ledoyer, 1969: 67, pl. I, figs 1A–4A, pl. 14B; 1984: 33, fig. 15; Bruce, 1976: 60; De Grave, 2001: 47.

MATERIAL. QMW20718, ♀ (1.5mm), Green Island, NE Qld, 16°45.5'S, 145°58.2'E, Stn HIPA19, 3.5m, from seagrass bed of *Halodule uninervis* and *Cymodocea serrulata*, sand/shell, trawled, L. McKenzie, 30.05.1989.

REMARKS. The female specimen agrees closely with Kemp's (1925) description (as *Chlorocurtis miser*) except for slight rostral differences. The rostrum has a series of 7 dorsal teeth, with the posterior tooth not particularly more distant from the second than the second is from the third, and the second tooth has a suture at its base. *Chlorocurtis* is currently considered monotypic. This small species has been previously recorded from *Cymodocea* seagrass beds, and algal *Sargassum* beds (Bruce, 1976), and from the base of soft coral (De Grave, 2001). The association with *Halodule uninervis* has not been previously reported.

DISTRIBUTION. Red Sea, Kenya, Andaman Islands, Singapore, New Caledonia, Gilbert Islands, Papua New Guinea. Not previously recorded from Australia.

Chlorotocella gracilis Balss, 1914 (Fig. 1B)

Chlorotocella gracilis Balss, 1914: 33, figs 16–22; De Man, 1920: 110, 180, pl. 15, fig. 45, 45a; Kemp, 1925: 278; Hayashi & Miyake, 1968: 12, figs 1a–c, 4a; Ledoyer, 1984: 33, fig. 16; Chace, 1985: 11; Hayashi, 1986: 114, 115, 266, fig. 72; Bruce, 1988: 235; Bruce & Coombes, 1997: 331; Davie, 2002: 344; Li & Komai, 2003: 258–259.
Pandalus (Parapandalus) leptorhynchus gibber Hale, 1924: 68, pl. iv, figs 6, 7.

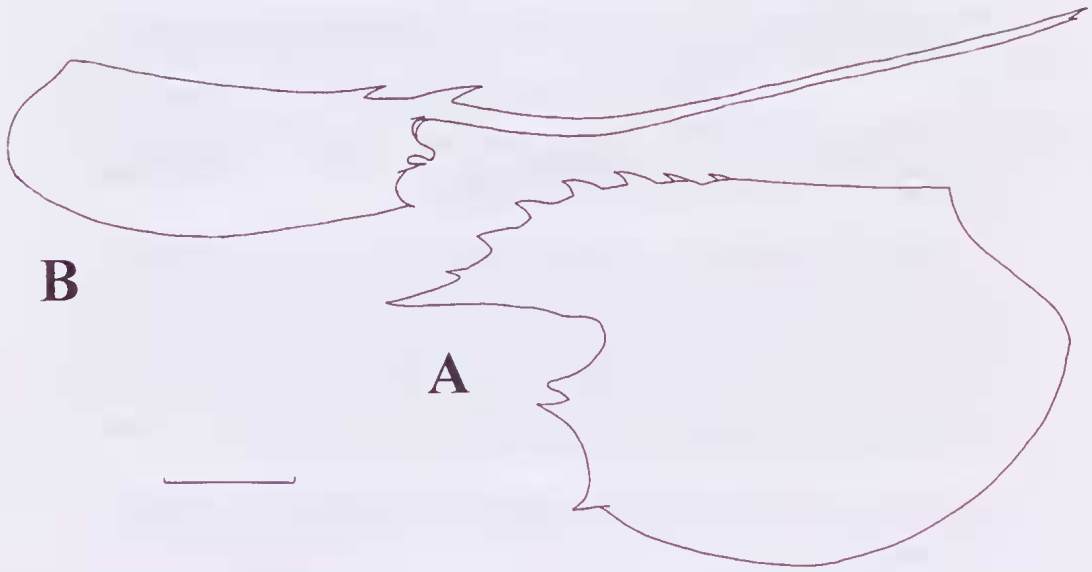

FIG. 1. Carapace, lateral view. A, *Chlorocurtis jactans* (Nobili, 1904), QMW20718; B, *Chlorotocella gracilis* Balss, 1914, QMW7236, female, scale = 1mm (A); 0.5mm (B).

Parapandalus leptorhynchus gibber: Hale, 1927: 44, fig. 35.

MATERIAL. QMW20387, ♂ (3.1mm), 2 ♀♀ (2.3, 2.9mm), ovig. ♀ (3.4mm), Gagg Is., Kimberley coast, WA, 16°11.2'S, 123°27.2'E, Stn 21, 20m, fringing reef, associated with gorganacean coral, J. Short, 26.11.1994; QMW7236, 2 ♂♂ (4.2, 4.5mm), 2 ♀♀ (5.3, 5.44mm), Redland Bay, Moreton Bay, Qld, 27°40.5'S, 153°19'E, CSIRO, 8.08.1972.

REMARKS. Besides *Chlorotocella gracilis*, two other Australian species are referable to *Chlorotocella*, *viz*. *Hippolyte spinicaudus* H. Milne Edwards, 1837 (= *Pandalus leptorhynchus* Stimpson, 1860, see Holthuis (1995: 144) and Davie (2002: 344)), and *Parapandalus leptorhynchus gibber* Hale, 1924 (Hale, 1924, 1927; Li & Komai, 2003). There have been few reports of either species since Hale (1927).

Pandalus leptorhynchus was transferred to *Chlorotocella* by Holthuis (1947), and subsequently established as a junior synonym of *C. spinicaudus* (H. Milne Edwards, 1837) by Holthuis (1995). It differs from *Chlorotocella gracilis* Balss, 1914, because its rostrum has 2–5 ventral teeth, whereas *C. gracilis* has only a single ventral subapical tooth.

However, the taxonomic status of *Pandalus (Parapandalus) leptorhynchus gibber* Hale, 1924, has remained uncertain. Hale's (1924, 1927) description and figures appear very similar to *Chlorotocella gracilis*. Thierry Laperousaz of the South Australian Museum kindly sent to us type and other specimens of *P.(P.) leptorhynchus gibber* identified by Hale. Unfortunately they are in poor condition. SAM C 206 is a paratype ovigerous female of '*Parapandalus leptorhynchus gibber* Hale 1924' collected from St Vincents Gulf, South Australia. It is a dry specimen, and the rostrum and most of the pereiopods are lost. It looks identical to *Chlorotocella gracilis* Balss, 1914.

All the rest of the loaned material is here re-identified as *Chlorotocella spinicaudus* (H. Milne Edwards, 1837). SAM C6273, consists of only dry abdomens; SAM C6274 has the name '*Pandalus leptorhynchus ?* Stimpson' on the label, and consists of four dry specimens, all distinctly smaller than the paratype female above — one of these bears two ventral rostral teeth at 0.5 and 0.75 of the rostral length and one subapical ventral tooth, and thus is here re-identified as *Chlorotocella spinicaudus* (H. Milne Edwards, 1837), however it is not possible to see the ventral rostral margin on the other three, so their identity cannot be definitely confirmed but all can be assumed to be *C. spinicaudus*. SAM C201, consists of 48 specimens, including 18 ovig. females, was collected from St Vincents Gulf, South Australia, on 12 April 1924. It was identified as '*Pandalus leptorhynchus* Stimpson' by Hale. All the available specimens have a very slender and short rostrum, usually just over-reaching the end

of the scaphocerite, about 0.9 times as long as carapace, always armed with one dorsal tooth on about the proximal 1/5 to 1/3, an epigastric tooth on the carapace, and usually three ventral teeth on the distal half (including the subapical tooth). The largest ovigerous female (c.l. 6.0mm) has the longest rostrum (1.1 times carapace length), over-reaching the end of the scaphocerite by distal 1/6, and is armed ventrally with five teeth on distal 0.6 rostral length. SAM C202, is an ovigerous female collected from same locality and date as SAM C201, and is clearly the same species. SAM C203, is an ovigerous female collected from Geographe Bay, WA on 12 April 1924, and again is same species as SAM C201. SAM C204 consists of 4 ovigerous females (5.3–5.9mm) collected from Nuyts Arch., South Australia, by dredge at 3–4 fathoms on 12 April 1924. They are very similar to the largest ovigerous female of SAM C201, and therefore we consider them to be also the same species.

Thus after examining all the available material from the South Australian Museum we can confirm that *Parapandalus leptorhynchus gibber* Hale, 1924, is a junior synonym of *Chlorotocella gracilis* Balss, 1914, and that only *C. gracilis* Balss, 1914 and *C. spinicaudis* (H. Milne Edwards, 1837) occur in Australia.

ECOLOGY. From low intertidal pools to about 91m depth; one record associated with a gorgonian, *Junceella fragilis*.

DISTRIBUTION. Andaman and Nicobar Islands, Singapore, Indonesia, Philippines, East and South China Seas, Japan, Australia. The present species was recorded previously in Australian waters by Bruce (1988) and Bruce & Coombes (1997) from the East Point Fish Reserve, Darwin Harbour, Northern Territory.

Chlorotocus novaezealandiae (Borradaile, 1916)

Thalassocaris novae-zealandiae Borradaile, 1916: 84, fig. 2
Chlorotocus novaezealandiae: Crosnier & Forest, 1973: 186; Chace, 1985: 11; Kensley et al., 1987: 312; Davie, 2002: 345.

MATERIAL. QMW18034, ovig. ♀ (11.4mm), off Tully, Qld, 17°58.7'S, 147°08.7'E, trawled, CSIRO, R.V. *Soela*, C0685A91, 325–328m, 9.12.1985; QMW26769, 2 ovig. ♀♀ (10.9, 12.2mm), CSIRO Cr. 0186, Stn 21, 12.01.1986; QMW26770, ♀ (11.5mm), 2 ovig. ♀♀ (11.3, 12.9mm), CSIRO Cr. 0186, Stn 63, 19.01.1986; QMW26771, ♂ (12.0mm), 17°59'S 147°02'E–17°57'S, 147°00'E, *Soela*, Cr. 6, Stn 44, 250–252m, P. Davie, 29.11.1985.

REMARKS. There are currently two recognised species of *Chlorotocus viz*, *C. crassicornis* (Costa, 1871) and *C. novaezealandiae* (Borradaile, 1916). They can be distinguished by the length of the rostrum and body size (Crosnier & Forest, 1973; Kensley et al., 1987). In *C. novaezealandiae* the rostrum just reaches or only slightly over-reaches the distal article of the antennular peduncle, and the carapace length of ovigerous females is from 10.8–14.0mm. In *C. crassicornis* the rostrum reaches well beyond the distal segment of the antennular peduncle, and the carapace length of ovigerous females is from 16.5–20.0mm (Kensley et al., 1987). However, Li & Komai (2003) have recently cast some doubt on the value of these characters. An examination of a large number of *C. crassicornis* from northern South China Sea showed considerable variation in the relative length of the rostrum and the size of female maturity. The rostrum of those specimens ranged from distinctly not-reaching to distinctly over-reaching the end of the last segment of the antennular peduncle, and the carapace length of the ovigerous females ranged from 8.3 to 21.1mm. The largest female examined by Crosnier & Forest (1973) was only 12.2mm in carapace length. It is clear that a larger study of variation across both species is necessary to be sure of their taxonomic distinction. We have identified the present specimens as *C. novaezealandiae*, based on the previous understanding of the species separation i.e. having a shorter rostrum and a relatively small body size.

There is a third, unnamed species of *Chlorotocus* from Japan, previously reported under the name *C. incertus* by Balss (1914: 33) [not *C. incertus* Bate, 1888, which is believed to be a junior synonym of *C. crassicornis*] (see Crosnier & Forest, 1973: 185; and Chace, 1985: 11). This species is apparently characterised by having its two posterior abdominal somites uniquely different from the named species discussed above.

DISTRIBUTION. Previously recorded from New Zealand in 128m depth (Borradaile, 1916) and off New South Wales at 40m (Kensley et al., 1987). The present record extends the range of the species northward to Queensland (17°59'S) and extends the known depth range to 328 meters.

Heterocarpus calmani Crosnier, 1988

Heterocarpus Wood-Masoni: Balss, 1925: 286 (in part); Calman, 1939: 204 (not *H. woodmasoni* Alcock, 1901)

Heterocarpus woodmasoni: Kensley, 1969: 170, fig. 12; Holthuis, 1980: 137 (in part).
Heterocarpus calmani Crosnier, 1988: 59, fig. 1a–h; Davie, 2002: 345.

MATERIAL. QMW11308, 5 ♂♂ (21.4–23.8mm), ♀ (26.4mm), eastern Australia, 23°21'S, 153°23'E, 410m, *Southern Intruder* Survey, shot 41, P. Davie, 30.11.1983; QMW11283, 5 ovig. ♀♀ (21.5–25.6mm), eastern Australia, 23°22'S, 152°45'E, 350–310m, *Southern Intruder* Survey, shot 42, P. Davie, 30.11.1983; QMW11286, ♂ (25.4mm), eastern Australia, 23°52'S, 153°02'E, 650m, *Southern Intruder* Survey, shot 2, P. Davie, 29.11.1983; QMW11293, ♂ (17.3mm), ♀ (19.0mm), ovig. ♀ (19.0mm), eastern Australia, 23°52'S, 153°02'E, 650m, *Southern Intruder* Survey, shot 2, P. Davie, 29.11.1983; QMW11315, 3 ♂♂ (19.1, 20.8, 22.9mm), ♀ (23.5mm), 4 ovig. ♀♀ (22.4–26.5mm), eastern Australia, 23°54'S, 153°01'E, 465m, *Southern Intruder* Survey, shot 1, P. Davie, 29.11.1983; QMW11417, ♂ (20.0mm), eastern Australia, 23°46'S, 153°06'E, 550m, *Southern Intruder* Survey, shot 3, M. Dredge, 9.08.1983; QMW11460, 2 ♂♂ (21.2, 21.5mm), 4 ♀♀ (17.2–23.0mm), 2 ovig. ♀♀ (22.4, 23.0, 24.4mm), eastern Australia, 23°59'S, 152°59'E, 380m, *Southern Intruder* Survey, M. Dredge (Q.F.S), 8.08.1983; QMW10062, 2 ♂♂ (21.5, 22.7, another's carapace damaged), 3 ♀♀ (15.7, 18.0, 21.4mm), 23°00.3'S, 152°12.5'E, 387m, *Craigmin* Survey, Stn 24, QFS, 3.10.1980; QMW10063, ♂ (21mm), 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, QFS, 20.09.1980; QMW10064, ♂ (20.6mm), 23°30'S, 153°04'E, 540m, *Craigmin* Survey, Stn 7, QFS, 20.09.1980; QMW26774, ♀ (18.0mm), E. of Tully, 17°59'S 147°09'E–17°55'S, 147°06'E, *Soela*, Cr. 6, Stn 47, 400m, P. Davie, 29.11.1985; QMW26758, ♂ (21.9mm), Deep Water Survey, *Southern Intruder*, M. Dredge (QFS).

REMARKS. The present material has been previously reported by Crosnier (1999). The species was long confused with *Heterocarpus woodmasoni* Alcock, 1901, until described as a separate species by Crosnier (1988). It differs from *H. woodmasoni* and *H. intermedius* Crosnier, 1999, by having an obvious postrostral crest and only two pairs of dorsolateral spines on the telson (excluding the subapical spines).

DISTRIBUTION. So far only known from NE Queensland and east Africa, Madagascar.

Heterocarpus dorsalis Bate, 1888

Heterocarpus dorsalis Bate, 1888: 630, pl. 111; De Man, 1920: 109, 171, pl. 15, fig. 43–43g; Balss, 1925: 285; Barnard, 1950: 684, fig. 127a; Zarenkov, 1971: 191, figs 1(11–12), 4(1–15); Chace, 1985: 22, fig. 13d; Hayashi, 1986: 116, 117, 267, photo 73; Crosnier, 1988: 62, figs 2, 3; Hanamura & Takeda, 1987: 107; Takeda & Hanamura, 1994: 20; Hanamura & Evans, 1996: 5; Davie, 2002: 345; Fransen, 2006: 52-55, figs. 1, 4-6, 7, 10, 13.
Heterocarpus alphonsi Bate, 1888: 632, pl. 112, fig. 1; De Man, 1920: 108.
Heterocarpus dorsalis ssp. *Alphonsi*: Monod, 1973: 123, figs 28–31.
Heterocarpus affinis: Borradaile, 1915: 208; Borradaile, 1917: 399; De Man, 1920: 108 (not Faxon, 1893).

MATERIAL. QMW18036, 2 ♂♂ (21.4, 23.2mm), ovig. ♀ (26.3mm), off Cairns, Qld, 17°01.8'S, 151°20.1'E, 802–792m, continental slope, trawled, CSIRO, R.V. *Soela*, C0685A79, 6.12.1985; QMW18035, ♀ (18.5mm), ovig. ♀ (19.7mm), off Cairns, Qld, 16°55.9'S, 151°34.6'E, 880m, continental slope, trawled, CSIRO, R.V. *Soela*, C0685A78, 6.12.1985; QMW18058, ♂ (16.1mm), 2 ovig. ♀♀ (21.9, 25.1mm), off Innisfall, Qld, 17°30.1'S, 149°00.4'E, 900–908m, continental slope, trawled, CSIRO, R.V. *Soela*, C0685A59, 2.12.1985.

DISTRIBUTION. A common Indo-West Pacific species, occurring from eastern Africa to Indonesia, Philippines, Japan, New Caledonia, and western Samoa. Previously recorded in Australia from NW continental slope (Hanamura & Takeda, 1987) and Western Australia (Hanamura & Evans, 1996); this is the first record from eastern Australia. Bathymetric range: 185 to 1400m.

Heterocarpus hayashii Crosnier, 1988

Heterocarpus sibogae: Chace, 1985: 11 (in part), fig. 20; Hayashi, 1986: 118, 119, 268, fig. 76; Chan & Yu, 1987: 57 (part), pl. 2, fig. c; Hanamura & Takeda, 1987: 107, fig. 1b.
Heterocarpus hayashii Crosnier, 1988: 67, figs 4b, 5b, pls 1d, 3e–e; Hanamura & Evans, 1996: 7, fig. 2; Davie, 2002: 346; Li & Komai, 2003: 259–260.

MATERIAL. QMW8234, 5 ♂♂ (24.4–32.7mm), 4 ♀♀ (22.8–24.0mm), 11 ovig. ♀♀ (25.2–32.0mm), 11°35'S, 144°04'E, 2–5 miles ENE Raine Island, AIMS, AMS, AMUS, 12.02.1979; QMW14312, 2 ♀♀ (28.6, 30.5mm), 27°13.00'S, 153°52.53'E, 590m, M.V. *Iron Summer*, trawled, shot 1, R. Morton (QFS), 9.05.1983; QMW14331, ovig. ♀ (34.2mm), 27°12'83"S, 153°52'87"E, SE Qld, M.V. *Iron Summer*, trawled, shot 3, R. Morton (QFS), 10.05.1983; QMW14335, ♀ (31.7mm), 27°19'91"S, 153°53'47"E, SE Qld, 660m, M.V. *Iron Summer*, trawled, QFS, 10.05.1983; QMW14343, ♀ (31.8mm), 27°35.04'S, 153°57.32'E, 545m, M.V. *Iron Summer*, trawled, shot 3, R. Morton, 31.03.1983; QMW14348, 2 ♂♂ (28.4, 29.4mm), ovig. ♀ (32.7mm), 26°30'S, 153°45'E, 390m, M.V. *Iron Summer*, trawled, shot 2, G. Smith (QFS), 13.12.1982; QMW14357, ♂ (37.1mm), 2 ovig. ♀♀ (32.8, 33.7mm), 26°31'S, 153°48'E, SE Qld, 570m, M.V. *Iron Summer*, trawled, shot 1, G. Smith (QFS), 13.12.1982; QMW11321, 3 ♂♂ (27.1, 27.3, 31.0mm), 13 ovig. ♀♀ (29.6–38.0mm), 23°54'S, 152°01'E, 465m, *Southern Intruder*, trawled, shot 1, P. Davie, 29.11.1983; QMW11316, ♂ (26.9mm), 2 ovig. ♀♀ (37.4, 36.7mm), 23°21'S, 153°23'E, 410m, *Southern Intruder*, trawled, shot 41, P. Davie, 30.11.1983; QMW11314, ♀ (32.4mm), ovig. ♀ (27.8mm), 23°52'S, 153°02'E, 650m, *Southern Intruder*, trawled, shot 2, P. Davie, 29.11.1983;

QMW11321, 4 ♂♂ (28.1–38.3mm), ♀ (30.8mm), 2 ovig. ♀♀ (35.9, 36.0mm), 23°22'S, 152°45'E, 350–310m, *Southern Intruder*, trawled, shot 42, P. Davie, 30.11.1983; QMW11388, 2 ♀♀ (29.4, 34.9mm), 4 ovig. ♀♀ (28.8–34.7mm), 23°51'S, 153°00'E, 460m, *Southern Intruder*, trawled, shot 2, M. Dredge (QFS), 9.08.1983; QMW11424, 2 ♂♂ (31.4, 33.9mm), ♀ (33.8mm), 2 ovig. ♀♀ (35.0, 35.2mm), 23°46'S, 153°06'E, 550m, *Southern Intruder*, trawled, shot 3, M. Dredge (QFS), 9.08.1983; QMW14307, 2 ovig. ♀♀ (24.0, 28.2mm), 1 juvenile (12.3mm, unarmed dorsal margin 7.5mm), 17°38'S–149°23'E to 17°34'S–149°23'E, 600m, R.V. *Soela*, Cr. 6, Stn 60, trawled, P. Davie, 3.12.1985; QMW15931, 2 ♂♂ (26.6, 27.3mm), 2 ♀♀ (25.5, 32.6mm), 12 ovig. ♀♀ (27.5, 31.6mm), off Lihou Reef, Coral Sea, NE Qld, 600–700m, trapped, M.V. *Ocean Rover*, R. McAlister, Jun. 1989; QMW16206, 2 ♀♀ (29.3, 33.0mm), 15°58'S, 149°56'E, North Cay area, Willis Islets, FN Qld, 590m, M.V. *Valkyrie Voyager*, trawled, G. Williams, 30.06.1989; QMW16220, 1 ovig. ♀♀ (27.3mm), 16°55'S, 150°00'E, near Chilcott Is., Qld Plateau, NE Qld, 406m, M.V. *Valkyrie Voyager*, trawled, G. Williams, 3.07.1989; QMW10051, ovig. ♀ (31.9mm), 26°31'S, 153°48'E, *Craigmin* Survey, Stn 1, 480m, QFS, 13.09.1980; QMW10052, 12 ♂♂ (31.0–35.3mm), ♀ (35.1mm), 8 ovig. ♀♀ (30.3–35.5mm), 23°30'S, 153°04'E, *Craigmin* Survey, Stn 7, 540m, QFS, 20.09.1980; QMW10053, 21 ♂♂ (31.2–37.5mm), 9 ovig. ♀♀ (32.5–34.8mm), 23°28'S, 153°19'E, *Craigmin* Survey, Stn 6, 562m, QFS, 20.09.1980; QMW10054, 3 ♀♀ (30.0, 33.8mm, another damaged), 23°28'S, 153°19'E, *Craigmin* Survey, Stn 6, 562m, QFS, 20.09.1980; QMW10055, ♂ (34.5mm), 2 ♀♀ (32.3, 33.3mm), 3 ovig. ♀♀ (33.8, 33.8, 34.7mm), 23°28'S, 153°19'E, *Craigmin* Survey, Stn 6, 562m, QFS, 20.09.1980; QMW10056, ♀ (34.8mm), ovig. ♀ (35.0mm), 23°15.3'S, 154°14'E, *Craigmin* Survey, Stn 26, 549m, QFS, 4.10.1980; QMW10057, ovig. ♀ (35.6mm), 22°36.7'S, 154°14'E, *Craigmin* Survey, Stn 25, 522m, QFS, 4.10.1980; QMW10058, 2 ♀♀ (35.0mm, another damaged), 22°10'S, 154°10'E, *Craigmin* Survey, Stn 9, 570m, QFS, 21.09.1980; QMW10059, 2 specimens (damaged, 29.5, 34.1mm), 23°30'S, 153°04'E, *Craigmin* Survey, Stn 7, 540m, QFS, 20.09.1980; QMW10060, ♂ (35.5mm), 1 specimen (damaged, 30.6mm), 22°36.7'S, 154°14'E, *Craigmin* Survey, Stn 25, 522m, QFS, 4.10.1980; QMW10061, ♂ (31.8mm), 5 ♀♀ (25.0–33.8mm), ovig. ♀ (32.6mm), 23°28'S, 153°19'E, *Craigmin* Survey, Stn 6, 562m, QFS, 20.09.1980; QMW11201, 4 ♂♂ (27.4–33.2mm), 4 ♀♀ (26.6–28.0mm), 3 ovig. ♀♀ (25.0, 27.2, 32.6mm), 5 juvenile, 9°50'S 144°11'E–9°51'S 144°09'E, east of Murray Isles, 460–464m, QFS, R.V. Gwendolyn May, 27.05.1993; QMW11202, 7 ♂♂ (25.8–32.6mm), 4 ♀♀ (24.3–29.5mm), 3 ovig. ♀♀ (30.6, 30.8, 32.8mm), 15 juvenile, 9°51'S 144°26'E–9°53'S 144°23'E, east of Murray Isles, 480m, QFS, Gwendolyn May, 28.05.1993; QMW26768, ovig. ♀ (32.4mm), 27°16'S, 153°53'E, 540m, M.V. *Iron Summer*, trawled, shot 5, 13.08.1982; QMW26762, 2 ♀♀ (18.3, 19.7mm), 27°36'S, 153°36'E, SE Qld, 540m, M.V. *Iron Summer*, trawled, shot 6, R. Dutton, 29.07.1982; QMW26750, ovig. ♀ (33.4mm), 27°13' to 27°22'S, 153°00'E, 500–540m, M.V. *Iron Summer*, trawled, shot 1–7, M. Holmes, 2–3.10.1982; QMW26738, 9 ♂♂ (29.7–35.8mm), 4 ovig. ♀♀ (29.1–39.3mm), 23°28'S, 153°00'E, 110m, *Southern Intruder*, trawled, shot 57, QFS, NE of Bunker Group, 3.08.1984.

REMARKS. *Heterocarpus hayashii* is very similar to *H. sibogae* De Man, 1917. On fresh specimens, the red patches on the carapace and abdomen may help to distinguish *H. hayashii*, however the patches fade quickly after death. Crosnier (1988) remarked that the two species can be separated by the relative lengths of the posteromedial spines on the third and fourth abdominal somites. This can be a simple and easy method to identify alcohol preserved specimens, but these spines are often broken and damaged, and sometimes they can be sufficiently variable to be unreliable (Hanamura & Evans, 1996). Hanamura & Evans (1996) alternatively suggested that the two species can be separated by differences in length of the unarmed portion of the dorsal carapace margin. Our specimens had more than half the dorsal carapace margin unarmed, and this was consistent with longer posteromedial spines on the third abdominal somite than on the fourth (as suggested by Crosnier, 1988).

DISTRIBUTION. Japan, East and South China Seas, Philippines, New Caledonia, Samoa, eastern and western Australia; at depths of 200–700m.

Heterocarpus intermedius Crosnier, 1999

Heterocarpus intermedius Crosnier, 1999: 346, fig. 1; Davie, 2002: 346.

MATERIAL. QMW11317, ♂ (24.2mm), 4 ovig. ♀♀ (30.3–34.6mm), eastern Australia, 23°52'S, 153°02'E, 650m, *Southern Intruder* Survey, shot 2, P. Davie, 29.11.1983; QMW11309, ♂ (33.5mm), 4 ovig. ♀♀ (31.3–36.5mm), eastern Australia, 23°45'S, 153°07'E, 550m, *Southern Intruder* Survey, shot 3, P. Davie, 29.11.1983; QMW16211, ovig. ♀ (30.7mm), North Cay, Willis Islets, NE Qld, 15°58'S, 149°56'E, 590m, *Valkyrie Voyager*, G. Williams, 30.06.1989; QMW11419, ♂ (32.3mm), eastern Australia, 23°46'S, 153°06'E, 550m, *Southern Intruder* Survey, trawl, M. Dredge (QFS), 9.08.1983.

REMARKS. The present specimens have been previously reported by Crosnier (1999). The species was confused with *Heterocarpus woodmasoni* Alcock, 1901, and *H. calmani* Crosnier, 1988, until described as a separate

species by Crosnier (1999). It is closely allied to *H. calmani*, but lacks the postrostral crest characteristic of that species. Also on fresh specimens of *H. calmani* the prominent middle tooth on the third abdominal somite is coloured blackish with white longitudinal stripes, and a reddish black base, whereas in *H. intermedius* this tooth lacks any special colouring. *H. intermedius*, as its specific name indicates, is morphologically intermediate between *H. woodmasoni* and *H. calmani*: the telson is similar to that of *H. calmani*, while the rostrum and the colouration of the middle tooth on the third abdominal somite are similar to *H. woodmasoni*. The two species overlap in distribution in Queensland, and may even caught in the same trawl shot [e.g., QMW11317 (*H. intermedius*) and QMW11286, QMW11293 (*H. calmani*), QMW11309 (*H. intermedius*) and QMW11417 (*H. calmani*)]. It is thus apparent that while the morphological differences may be quite small, the species must be reproductively isolated.

DISTRIBUTION. East coast of Australia, New Caledonia, the Loyalty and Chesterfield Islands, and the Combe and Tusearora Banks.

Heterocarpus laevigatus Bate, 1888

Heterocarpus laevigatus Bate, 1888: 636, pl. 112, fig. 3; Alcock, 1901: 105; De Man, 1920: 109, 159, pl. 13, 37, 37b; Barnard, 1950: 684, fig. 127b; Figueira, 1957: 41, figs 5, 6, pl. 4, fig. 1; Crosnier & Forest, 1973: 195, fig. 61c; Chace, 1985: 33, fig. 13i; Hayashi, 1986: 118, 119, 268, photo 75; Crosnier, 1988: 74; Poupin, 1996: 8, pl. 3b; Davie, 2002: 346.

MATERIAL. QMW15930, ♂ (35.0mm), 3 ♀♀ (30.8, 36.4, 39.1mm), 9 ovig. ♀♀ (36.6–44.1mm), off Lihou Reef, Coral Sea, NE Qld, 17°S, 152°E, 600–700m, R. McAlister, M.V. *Ocean Rover*, June 1989.

DISTRIBUTION. Eastern Atlantic, South Africa to Indonesia, Western Australia and French Polynesia. The present material is the first record for eastern Australia.

Heterocarpus sibogae De Man, 1917

Heterocarpus sibogae De Man, 1917: 283; 1920: 109, 169, pl. 14, 42–42i; Monod, 1973: 122, figs 26, 27; Chace, 1985: 36 (in part, figs 13m, 18, 19); Chan & Yu, 1987: 57 (in part, pl. 2, fig. d); Crosnier, 1988: 79, fig. 5c, pl. 1, fig. c, pl. 3, figs a, b; Takeda & Hanamura, 1994: 21; Hanamura & Evans, 1996: 8, fig. 3; Davie, 2002: 347.
Heterocarpus sp.: Hayashi, 1986: 121, 269, fig. 77.

MATERIAL. QMW11961, 3 ♂♂ (31.2, 33.0, 33.8mm), ovig. ♀ (26.1mm), NW shelf, WA, KFV, Fisheries, Feb. 1986; QMW18050, ovig. ♀ (29.9mm), 17°38.1'S, 149°23.4'E, off Innisfall, Qld, trawled, Stn 60, continental slope, CSIRO, R.V. *Soela*, C0685A60, 604–600m, 3.12.1985; QMW18022, ♂ (30.3mm), 2 ovig. ♀♀ (28.3, 34.3mm), 17°01.8'S, 151°20.1'E, off Cairns, Qld, trawled, continental slope, CSIRO, R.V. *Soela*, C0685A79, 802–792m, 6.12.1985; QMW20791, 5 ♂♂ (30.5–36.8mm), ovig. ♀ (325mm), 18°06.0'S, 118°10.9'E, 390–250m, North West Shelf Area, WA, *Southern Surveyor*, trawled, Stn 124, continental slope, SS0895, S. Cook, 8.09.1995; QMW11312, 1 ♂♂ (29.2, 34.5mm), ovig. ♀ (36.4mm), 23°45'S, 153°07'E, 550m, *Southern Intruder*, trawled, shot 3, P. Davie, 29.09.1983.

DISTRIBUTION. Indo-Pacific: Andaman Sea, Indonesia, southern Philippines, Japan, New Caledonia, New Hebrides, Fiji, western Samoa, and western, southern and eastern Australia. Bathymetric range: 247–850m (mainly 320–520m).

REMARKS. See 'Remarks' for *Heterocarpus hayashii*. As the two species were confused prior to Crosnier (1988), the precise distribution of *H. sibogae* across the Indo-West Pacific region needs to be carefully reviewed.

Heterocarpus woodmasoni Alcock, 1901

Heterocarpus Wood-masoni Alcock, 1901: 108; De Man, 1920: 156, pl. 13, fig. 36.
Heterocarpus wood-masoni: Alcock & McArdle, 1901: pl. 51, fig. 2.
Heterocarpus woodmasoni: Chace, 1985: 42, fig. 13q; Kensley et. al., 1987: 313; Crosnier, 1988: 61, fig. 1i–l; 1999: 348; Davie, 2002: 347.

MATERIAL. QMW11962, 3 ♂♂ (32.2, 32.8, 32.8mm), NW Shelf, WA, KFV Fisheries, Feb. 1986; QMW8235, 20 ♂♂ (23.3–28.5mm), 17 ovig. ♀♀ (21.2–30.6mm), 11°35'S, 144°04'E, Coral Sea, 2–5 miles ENE of Raine Island, Qld, beam trawl, 12.02.1979; QMW10077, ♂ (22.2mm), 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, QFS, 20.09.1980; QMW26749, ovig. ♀ (23.5mm, damaged), 23°30'S, 153°04'E, 540m, *Craigmin* Survey, Stn 7, trawled, QFS, 20.09.1980; QMW11208, ♀ (26.6mm), 32 ovig. ♀♀ (24.3–30.8mm), 9°50'S 144°11'E–9°51'S 144°09'E, 460–464m, east of Murray Isles, QFS, *Gwendolyn May*, 27.05.1983; QMW11209, 3 ♂♂ (25.0, 25.8, 27.7), ♀ (30.0mm), 2 ovig. ♀♀ (27.2, 28.5mm), 9°50'S 144°11'E–9°51'S 144°09'E, 460–464m, east of Murray Isles, QFS, *Gwendolyn May*, 27.05.1983; QMW11207, ♂ (30.8mm), 44 ovig. ♀♀ (21.8–31.0mm), 9°51'S 144°26'E–9°53'S 144°23'E, 490m, east of Murray Isles, QFS, *Gwendolyn May*, 28.05.1983; QMW11211, 60 ♂♂ (22.5–32.4mm), ovig. ♀ (34.1mm), 9°51'S 144°26'E–9°53'S 144°23'E, 480m, east of Murray Isles, QFS, *Gwendolyn May*, 28.05.1983.

FIG. 2. *Plesionika albocristata* Chan & Chuang, 2002, anterior carapace, lateral view, QMW26746, scale = 5mm.

REMARKS. *Heterocarpus woodmasoni* is closely allied to *H. calmani* and *H. intermedius*, and prior to the description of the latter two species, records of all three were confounded under *H. woodmasoni*. Therefore the precise distribution of *H. woodmasoni* needs to be carefully reviewed. *H. woodmasoni* (W10077) has been caught in the same trawl shots as *H. caluani* (W10063).

DISTRIBUTION. South Africa to Indonesia, South China Sea, Philippines, NE and NW Australia.

Plesionika albocristata Chan & Chuang, 2002 (Fig. 2)

Plesionika albocristata Chan & Chuang, 2002: 611, figs 1, 2.

MATERIAL. QMW26746, ovig. ♀ (22.8mm), E. of Brisbane, 27°45.6'S, 153°58'E, 540m, *Iron Summer* Survey, trawled, shot 7, P. Dutton, 29.07.1982.

REMARKS. The species differs from all other members of *Plesionika* by its peculiar rostral crest, which has 2 very large broad fixed teeth in front of the orbit and 7–9 very small moveable teeth behind the postorbital margin. It further differs from the two most closely allied species, *P. rostricrescentis* (Bate, 1888) and *P. lophotes* Chace, 1985, by having a telson with 5 pairs of dorsolateral spines (including the pair adjacent to the lateral pair of posterior spines), and by having subequal second pereiopods. Our specimen closely agrees with the original description of Chan & Chuang (2002) except that the ventral rostral teeth look more widely separated than on the illustration of Chan & Chuang (2002), and the stylocerite is somewhat shorter, just over-reaching the end of the proximal article of antennular peduncle.

DISTRIBUTION. Previously known only from the type locality east of Taiwan. The present specimen is a new record for Australian waters and marks a major southerly range extension in the West Pacific. Bathymetric range: 350 to 423m (Chan & Chuang, 2002); 540m (present record).

Plesionika alcocki (Anderson, 1896)

Pandalus alcocki Anderson, 1896: 92.
Pandalus (Plesionika) alcocki : Alcock & McArdle, 1901: pl. 52, fig. 2.
Plesionika alcocki: De Man, 1920: 105; Balss, 1925: 278, fig. 48; Monod, 1973: 122, fig. 25; Chace, 1985: 55; Hayashi, 1986: 127, 270, fig. 81; Kensley, Tranter & Griffin, 1987: 313; Davie, 2002: 347; Fransen, 2006: 62-65, fig. 17.

MATERIAL. QMW18063, 4 ♂♂ (20.3–24.6mm), 5 ♀♀ (23.1–26.5mm), 11 ovig. ♀♀ (23.0–25.0mm), east of Brisbane, SE Qld, continental slope, 700–900 (22.9–24.1mm), 13 ovig. ♀♀ (21.6–27.5mm), east of Brisbane, SE Qld, 700–900m, *Valkyrie Voyager*, trawled, Wood Fisheries Pty Ltd., May 1988; QMW18040, ♂ (24.4mm), ovig. ♀ (28.5mm), 17°01.8'S, 151°20.1'E, off Cairns, Qld, 802–792m, R.V. *Soela*, trawled, C0685A79, CSIRO, 6.12.1985; QMW26766, 4 ♂♂ (15.9–23.5mm), 3 ovig. ♀♀ (24.1, 24.5, 26.4mm) 17°01.8'S 151°20.1'E, *Soela*, Cr. 6, Stn 79, 792-802m, 6.12.1985.

DISTRIBUTION. Indian Ocean, western Pacific; 500–1412m; previously recorded from Australia

between Point Danger, SE Qld, and Port Jackson, NSW from between 724–895m.

Plesionika bifurea Alcock & Anderson, 1894

Pandalus bifurca Alcock & Andersen, 1894: 155.
Pandalus (Plesionika) bifurca: Alcock & McArdle, 1901, pl. 51, fig. 6.
Plesionika bifurca: De Man, 1920: 105, 136, pl. 12, fig. 31, 31b; Chace, 1985: 56, fig. 24; Kensley, Tranter & Griffin, 1987: 314; Davie, 2002: 348; Li & Komai, 2003: 260; Fransen, 2006: 65-68, fig. 18.

MATERIAL. QMW26776, ovig. ♀ (10.8mm), 17°38'S 149°23'E to 17°34'S 149°23'E, 600m, *Soela*, Cr. 6, Stn 60, P. Davie, 3.12.1985.

DISTRIBUTION. Eastern Africa, Arabian Sea, Bay of Bengal, Andaman Sea, Indonesia, Philippines, South and East China Seas, Japan and Eastern and northwestern Australia. Bathymetric range: 220–1412m.

Plesionika crosnieri Chan & Yu, 1991

Plesionika longirostris: Barnard, 1950: 681, fig.126n; Crosnier, 1976: 234, fig. 4a (in part); Suzuki, 1976: 46, figs 3, 4 (not *P. longirostris* Borradaile, 1900).
Plesionika edwardsii: Chace, 1985: 62, fig. 26a–3 (in part) (not Brandt, 1851).
Plesionika crosnieri Chan & Yu, 1991: 546, figs 1, 3a.

MATERIAL. QMW28050, ♂ (20.8mm), ♀ (16.5mm), E. of Bunker Group, 23°34'S, 153°16'E, 650m, *Southern Intruder*, trawled, Bottle 37c, shot 5, M. Dredge (QFS), 9.08.1983; QMW16211, ♂ (23.5mm), ♀ (26.8mm), 16°55'S, 150°00'E, near Chileott Island, Qld Plateau, NE Qld, 406m, *Valkyrie Voyager*, trawled, B. Williams, 3.07.1989; QMW10067, ovig. ♀ (18.6mm), 26°20'S, 153°53'E, *Craigmin* Survey, Stn 2, 300m, QFS, 13.09.1980; QMW26767, 7 ovig. ♀♀ (dry), E. of Tweed Heads, NSW, 28°11'40"S, 153°54'E, *Iron Summer* Survey, Shot 1, 230–238m, P. Dutton, 27.07.1982.

REMARKS. *Plesionika crosnieri* is very close to *P. edwardsii* (Brandt, 1851). Chan & Yu (1991) indicated that fresh material of the two species is easy to distinguish because each has distinctive colouration. *P. crosnieri* has only one large fixed rostral tooth posterior to the orbital margin, and the distance between this tooth and the second tooth is more than that between the second and third tooth. *P. edwardsii*, has 2–4 dorsal rostral teeth located behind the orbital margin, with the most posterior being minute, variably movable, and close to the preceding tooth. Our specimens agree with Chan & Yu's (1991) description, in having only one large fixed dorsal rostral tooth posterior to the orbital margin, the stylocerite with its outer margin narrow and only very slightly curved upwards, and the basicerite spine not reaching the proximal end of the scaphocerite margin.

DISTRIBUTION. The present material is a new record for Australia, and extends the maximum known depth from 350m (Chan & Yu, 1991) to 650m. Known with certainty from eastern coast of South Africa, La Reunion, Crozet Islands, Indonesia, Philippines, Taiwan, Japan, New Caledonia, Australia. Bathymetric range: 80–650m.

Plesionika echinicola Chan & Crosnier, 1991

Plesionika echinicola Chan & Crosnier, 1991: 416, figs 1a, 2a, 3a–b, 19, 20.

MATERIAL. QMW18037, ovig. ♀ (18.5mm), 17°58.7'S, 147°08.7'E, off Tully, Qld, 325–328m, continental slope, R.V. *Soela*, C0685A91, trawled, CSIRO, 9.12.1985.

REMARKS. Although the rostrum and most of the ambulatory pereiopods of the specimen are broken or missing, it agrees with the original description in having five dorsal post-rostral teeth, the posteroventral angle of the fourth abdominal somite having a denticle, the third maxilliped without an epipod, the carpus of the first pereiopod very short (0.62 times as long as the carapace), the second pereiopods subequal, with 22 carpal articles, and the telson 1.3 times as long as the sixth abdominal somite. The 12 dorsal teeth corresponding to the posterior 10 ventral rostral teeth of our specimen, is slightly more than the 8-10.5 dorsal teeth of the type series.

DISTRIBUTION. Previously recorded only from the type locality New Caledonia and Chesterfield Islands; 230–580m.

Plesionika edwardsii (Brandt, 1851)

Pandalus (Pontophilus) Edwardsii Brandt, 1851: 122.
Pandalus (Parapandalus) longirostris Borradaile, 1900: 413, pl. 37, figs 10, 10a–h.
Plesionika longirostris: De Man, 1920: 106; Barnard, 1950: 681, fig. 126n; Crosnier, 1976: 234, fig. 4a (in part).
Plesionika edwardsii: Crosnier & Forest, 1973: 202, figs 63b, 64b; Chace, 1985: 62, fig. 26f–g (part); Kensley, Tranter & Griffin, 1987: 314–315; Chan & Yu, 1991: 550, figs 2, 3b; Chan & Crosnier, 1997: 193, fig. 23; Davie, 2002: 348.

MATERIAL. QMW15929, 42 ♂♂ (17.8–24.2mm), 5 ovig. ♀♀ (21.7–24.6mm), 1 juvenile, off Lihou Reef, Coral Sea, NE Qld, 600m, M.V. *Ocean Rover*, R. McAllister, Jun. 1989.

REMARKS. This species is very closely related to *Plesionika crosnieri*, and the points of difference are discussed under that species.

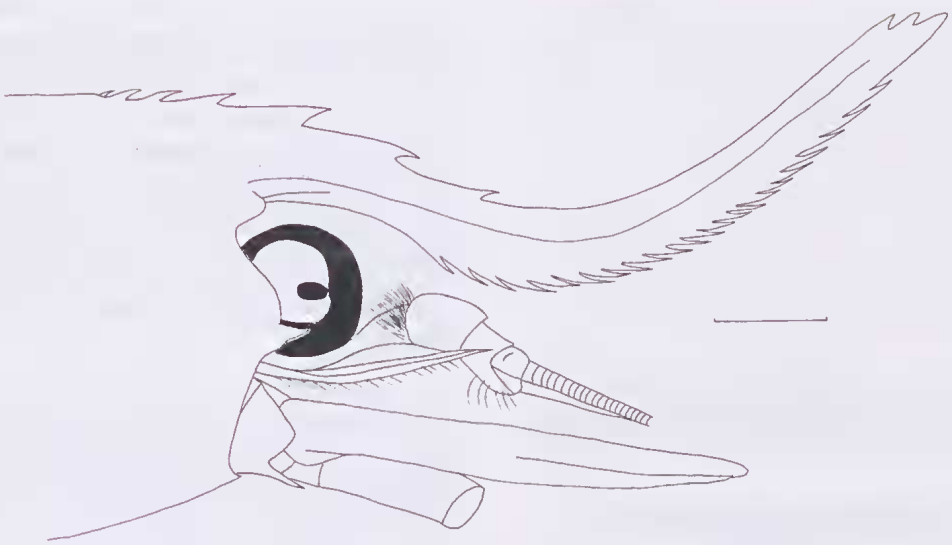

FIG. 3. *Plesionika grahami* Kensley et al., 1987. anterior carapace, lateral view, W11404, scale = 5mm.

DISTRIBUTION. Mediterranean, Atlantic, Indo-Pacific; 50–680m; previously recorded from Australia between Point Danger, SE Qld, and Batemans Bay, NSW.

Plesionika grahami Kensley, Tranter & Griffin, 1987 (Fig. 3)

Plesionika grahami Kensley, Tranter & Griffin, 1987: 315, figs 20, 21; Davie, 2002: 348.

MATERIAL. QMW11404, 2 ♀♀ (26.6, 27.2mm), 23°07'S, 153°24'E, 400m, *Southern Intruder*, trawled, M. Dredge (QFS), 6.09.1983; QMW26747, 4 ♂♂ (20.0–25.8mm), 4 ♀♀ (20.6–30.0mm), 2 ovig. ♀♀ (25.4, 25.5mm), 23°28'S, 153°00'E, 110m, *Southern Intruder*, off Burnett Heads, shot 57; QMW26742, ♂ (16.4mm), 27°13'–27°22'S, 153°53'E, 500–540m, *Iron Summer*, trawled, 2–3.10.1982; QMW26752, ovig. ♀ (24.0mm), 27°13'–27°22'S, 153°53'E, 500–540m, *Iron Summer*, trawled, shot 1–7, M. Holmes, 2–3.10.1982; QMW26753, ♀ (16.4mm), 28°04'S, 153°57'E, 400m, *Iron Summer*, trawled, shot 3, P. Dutton, 28.07.1982; QMW26751, ♂ (16.5mm), 28°04'S, 153°57'E, 400m, *Iron Summer*, trawled, shot 3, P. Dutton, 28.07.1982; QMW26745, ♀ (25.4mm), 27°54.5'S, 153°59'E, 490m, *Iron Summer*, shot 6, S. Hyland, 30.11.1982.

REMARKS. *Plesionika grahami* is most closely related to members of the *Plesionika rostricrescentis* species-group from which it can be readily distinguished by its strongly curved and deep rostrum, that bears more than 18 closely set, long, acute ventral teeth, but which is unarmed dorsally for the larger part of its distal margin, ending only in a couple of subapical teeth. Our material agrees with the original description except for the following variations. 1) The specimens reach a larger size — the largest female has a postorbital carapace length of 30.0mm. 2) The rostrum is deeper, and always has 7 proximal dorsal teeth and 2 subapical teeth. 3) The rostral movable crest spines vary from 1–3. 4) The telson is about 1.4 times as long as the sixth abdominal somite. 5) Right second pereiopod with 25–27 carpal articles. 6) Left second perciopod with 109–125 carpal articles, about 60 meral articles, and the distal one-third of the ischium also feebly sub-segmented into about 13 articles. 7) Dactylus of third perciopod about 0.2 times as long as propodus; with an accessory distal spine about 0.7 times as long as the main terminal spine; with the proximal 3/5 of the opposable margin of the accessory distal spine setose, and in close contact with the main terminal spine; the proximal 2/5 of the flexor margin of the dactyl bearing four accessory spines, becoming larger distally.

DISTRIBUTION. Previously known only from New South Wales, Australia. The present records extend the range northward to 23°07'S. Bathymetric range: from 149–675m (Kensley et al., 1987), but present records from as shallow as 110m.

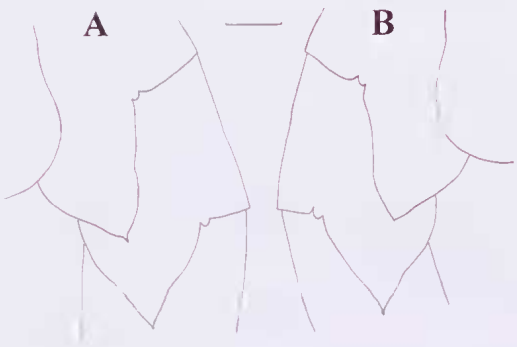

FIG. 4. *Plesionika grandis* Doflein, 1902, fourth and fifth abdominal somite, lateral view, QMW10081, ovig. female. A, left side; B, right side, scale = 2mm.

Plesionika grandis Doflein, 1902
(Fig. 4)

Plesionika spinipes var. *grandis* Doflein, 1902: 618, pl. 3 figs 3–5.
Parapandalus spinipes: De Man, 1920: 108, 142, pl. 12: fig. 33a, c–e; pl. 13: fig. 33, 33b [not *Plesionika spinipes* (Bate, 1888)].
Plesionika grandis: Chace, 1985: 66, figs 28, 29: Hayashi, 1986: 132, 133, 271, fig. 83; Hanamura & Takeda, 1987: 110; Chan & Crosnier, 1991: 423, figs 3f, 22; Davie, 2002: 349; Li & Komai, 2003: 260–261.

MATERIAL. QMW10081, 2 ♂♂ (?12.8, 15.6mm), 4 ovig. ♀♀ (14.6–15.3mm), 22°51.7'S, 152°45.7'E, 261m, *Craigmin* Survey, Stn 22, QFS, 3.10.1980; QMW10080, 7 ♂♂ (14.5–17.5mm), 10 ovig. ♀♀ (16.0–17.6mm), 22°51.7'S, 152°45.7'E, 261m, *Craigmin* Survey, Stn 22, QFS, 3.10.1980; QMW10082, ovig. ♀ (14.4mm), 23°36.3'S, 152°43.2'E, 360m, *Craigmin* Survey, Stn 19, QFS, 30.09.1980; QMW10084, 1 specimen (damaged, 14.6mm), 23°36.3'S, 152°43.2'E, 360m, *Craigmin* Survey, Stn 19, QFS, 30.09.1980; QMW10083, ♂ (15.5mm), 9 ovig. ♀♀ (15.2–18.7mm), 23°50.6'S, 152°36.2'E, 270m, *Craigmin* Survey, Stn 15, QFS, 29.09.1980; QMW10070, ovig. ♀ (14.4mm), 23°36.3'S, 152°43.2'E, 360m, *Craigmin* Survey, Stn 19, QFS, 30.09.1980; QMW28059, 2 ovig. ♀♀ (17.0, 18.8mm), 23°34'S, 153°16'E, 650m, *Southern Intruder*, shot 5, M. Dredge (QFS), 9.08.1983; QMW20867, 2 ♂♂ (17.0, 17.3mm), ovig. ♀ (19.9mm), 18°14.6'S, 118°11.2'E, North West Shelf, WA, 267m, R.V. *Southern Surveyor*, Stn 123, S. Cook, 8.09.1995; QMW16218, 2 ovig. ♀♀ (17.0, 17.5mm), 16°55'S, 150°00'E, near Chilcott Island, Qld Plateau, NE Qld, 406m, *Valkyrie Voyager*, trawled, B. Williams, 3.07.1989; QMW26760, ♂ (18.5mm), 7 ovig. ♀♀ (15.3–19.4mm), 23°59'S, 152°59'E, 380m, *Southern Intruder* Survey, shot 1, M. Dredge (Q.F.S), 8.08.1983.

REMARKS. *Plesionika grandis* is a member of the *Plesionika narval* species-group revised by Chan & Crosnier (1991). These species have a very long rostrum armed with numerous closely set teeth along almost the entire length of both margins. Interestingly, sometimes the posteroventral angle of the fourth abdominal somite of *P. grandis* is more acute on the left side than on the right (compare Figs 4A, B). This is evident in the present material of *P. grandis*, but also on specimens of *P. narval* (Fabricius, 1787) found by the first author from the northern South China Sea.

DISTRIBUTION. Widespread Indo-west Pacific (Madagascar to southern Japan, Taiwan, Philippines). Previously only reported from NW Australia, so present material represents a new distributional record for Queensland and the SW Pacific. Bathymetric range: 110–375m.

Plesionika indica De Man, 1917

Plesionika longipes var. *indica* De Man, 1917: 279; 1920: 106, 121, pl. 10, fig. 25a–g, pl. 11: fig. 25.
Plesionika sindoi: Balss, 1925: 279, figs 49–52, pl. 26.
Plesionika indica: Calman, 1939: 198; Chace, 1985: 70, figs 31, 32; Hanamura & Takeda, 1987: 111; Hanamura & Evans, 1996: 12; Davie, 2002: 349; Li & Komai, 2003: 261.

MATERIAL. QMW15837, ovig. ♀ (27.3mm), 16°41'S, 146°15'E, 600m, off Euston Reef, NE Qld, trawled, 2.12.1986.

REMARKS. Although represented by only a single ovigerous female the following characters are diagnostic for *Plesionika indica*: 1) the large adult size; 2) rostrum with 4 small dorsal teeth behind the level of the postorbital margin; 3) telson 1.6 times as long as the sixth abdominal somite; 4) the four anterior pairs of pereiopods with well-developed epipods; 5) second pereiopods with 38 carpal articles. The present record extends the bathymetric range to 600m depth.

DISTRIBUTION. Eastern Africa off Zanzibar, Indonesia, South China Sea, Philippines, Japan, Australia. Previously only reported from NW Australia, so the present specimen represents a new distributional record for Queensland and the SW Pacific. Bathymetric range: 220–600m.

Plesionika izumiae Omori, 1971

Plesionika izumiae Omori, 1971: 242, figs 1, 2; Hayashi, 1986: 132, 133, 271, fig. 84; Li & Komai, 2003: 261–262.
Plesionika izumiae ?: Chace, 1985: 75, fig. 34.

MATERIAL. QMW26748, ♀ (9.8mm), 17°47'S 146°54'E to 17°45'S 146°52'E, 296–300m, *Soela*, Cr. 6, Stn 50, P. Davie, 30.11.1985.

REMARKS. *Plesionika izumiae* has been found from the East China Sea and northern part of the South China Sea and adjacent areas (Li & Komai, 2003), where it could be considered a common pandalid species. The present single female specimen from off Queensland is a significant south-easterly range extension for this species.

DISTRIBUTION. New Australian record. Previously known from Japan, the northern part of the South China Sea, and the Philippines. Bathymetric range: 22–300m.

Plesionika narval (Fabricius, 1787)

Astacus Narval Fabricius, 1787: 331.
Parapandalus narval: Crosnier & Forest, 1973: 221, fig. 69a; Crosnier, 1976: 235, fig. 4b.
Plesionika serratifrons: De Man, 1920: 146, pl. 12, fig. 34a, c, pl. 13, fig. 34b, d, e; Chace, 1985: 121, figs 55, 56 (not Borradaile, 1900).
Plesionika narval: Lemaitre & Gore, 1988: 385, figs 3k–m, 4; Chan & Crosnier, 1991: 443, figs 12a–c, 13a, 14a–c, 15a–e, 34–36; Li & Komai, 2003: 265–267; Fransen, 2006: 71-73, figs. 20, 66.

MATERIAL. QMW10465, ovig. ♀ (17.6mm), off Cape Moreton, SE Qld, 110–119m, trawled, D. Harris, 30.03.1969; QMW7211, 2 ovig. ♀♀ (16.2, 16.5mm), off Cape Moreton, Moreton Bay, SE Qld, 110m, trawled, CSIRO, 13.08.1970; QMW28060, ♀ (16.6mm), 17°58.7'S, 147°08.7'E, off Tully, Qld, 325–328m, continental slope, R.V. *Soela*, C0685A91, trawled, CSIRO, 9.12.1985; QMW3157, ♂ (17.3mm), ♀ (21.1mm), 14 ovig. ♀♀ (16.0, 21.0mm), Cape Moreton, 119–128m, 20.03.1969; QMW4687, ovig. ♀ (15.0mm), NW off Cape Moreton, 110m, R. J. McKay, 27.02.1975; QMW26759, ♂ (16.8mm), ♀ (19.5mm), C61, shot 32, 327m, 21°57'S, 153°25'E, 330m, *Southern Intruder* Survey, M. Dredge (Q.F.S), 2.11.1983.

DISTRIBUTION. Mediterranean, Eastern Atlantic, South Atlantic, Indo-West Pacific from Red Sea, and Madagascar to French Polynesia. This is the first Australian record for this species. Bathymetric range: 70–910m.

Plesionika orientalis Chace, 1985

Plesionika martia orientalis Chace, 1985: 84, figs 38, 39, 53, 54; Hanamura & Takeda, 1987: 111, fig. 3a, b; Takeda & Hanamura, 1994: 21, fig. 9.
Plesionika orientalis: Hanamura & Evans, 1996: 14; Davie, 2002: 350.

MATERIAL. QMW11297, ♂ (23.7mm), ♀ (20.2mm), 5 ovig. ♀♀ (18.5–26.2mm), 23°17'S, 153°56'E, 460m, *Southern Intruder*, Shot 40, P. Davie, 30.11.1983.

REMARKS. The specimens agree closely with the original description of Chace (1985). The species is very close to *P. semilaevis* Bate, 1888. It differs from the latter by having the post-orbital margin nearly vertical, and the exopod of the third pleopod long, more than 0.75 times as long as the carapace, and the basicerite with distoventral tooth small and short, distinguishable from that of *P. martia* (A. Milne Edwards, 1883) and *P. semilaevis* Bate, 1888, whose distoventral teeth of the basicerite are very long and strong.

DISTRIBUTION. Australia, Indonesia–Philippines region. Within Australia previously only reported from off NW Australia, so the present specimen represents a new distributional record for Queensland and eastern Australia. Bathymetric range: 247–686m.

Plesionika parvimartia Chace, 1985

Plesionika parvimartia Chace, 1985: 93, fig. 42, 43; Davie, 2002: 350.

MATERIAL. QMW20866, 3 ovig. ♀♀ (14.8, 16.0, 16.3mm), 18°14.6'S, 118°11.2'E, North West Shelf, WA, 267m, R.V. *Southern Surveyor*, Stn 123, S. Cook, 8.09.1995; QMW20871, 2 ovig. ♀♀ (15.5, 16.3mm), 18°38.7'S, 118°07.0'E, North West Shelf, WA, 150m, R.V. *Southern Surveyor*, Stn 122, S. Cook, 8.09.1995; QMW26775, ♂ (6.5mm), 18°00.1'S 147°05.0'E, CSIRO, Cr. 0186, Stn 68, 300m, 20.01.1986.

REMARKS. The specimens agree closely with the original description of Chace (1985), they are bigger than Chace's (1985) material (his material with the maximum carapace length is 15mm). *Plesionika parvimartia* differs from the other members of *P. martia* species group by the anteriormost tooth of dorsal rostral series arising anterior to distal end of antennular pedunele, and probably, the relative small body size.

DISTRIBUTION. Australia, Indonesia, Philippines. Within Australia previously only reported from off NW Australia, so the present specimen represents a new distributional record for Queensland and eastern Australia. Bathymetric range: 176–366m.

Plesionika reflexa Chace, 1985
(Fig. 5)

Plesionika reflexa Chace, 1985: 108, fig. 49; Hayashi, 1986: 136, 137, 273, fig. 88; Crosnier, 1986: 362; Kensley, Tranter & Griffin, 1987: 318; Hanamura & Takeda, 1987: 116; Takeda & Hanamura, 1994: 23, fig. 10; Poupin, 1996: pl. 5a; Chan & Crosnier, 1997: 194, figs 3, 24; Davie, 2002: 350; Fransen, 2006: 77, 78, fig. 23.

MATERIAL. QMW11411, ovig. ♀ (20.0mm), 23°15'S, 153°45'E, 415m, *Southern Intruder*, trawled, shot 3, M. Dredge (QFS), 6.09.1983; QMW11465, ovig. ♀ (20.3mm), 23°46'S, 153°06'E, 550m, *Southern Intruder*, trawled, shot 3, M. Dredge (QFS), 9.08.1983; QMW11296, 2 ovig. ♀♀ (18.2, 19.3mm), 23°21'S,

153°23'E, 410m, *Southern Intruder*, trawled, shot 41, P. Davie, 30.11.1983; QMW11321, 2 ♂♂ (20.0mm), 23°22'S, 152°45'E, 350–310m, *Southern Intruder*, trawled, shot 42, P. Davie, 30.11.1983; QMW11284, ♂ (16.3mm), ovig. ♀ (20.9mm), 2 specimens (abdomen damaged, 15.9, 18.9mm), 23°54'S, 153°01'E, 465m, *Southern Intruder*, trawled, shot 1, P. Davie, 29.11.1983; QMW10673, ♂ (20.3mm), 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, trawled, QFS, 20.09.1983; QMW28061, ♂ (18.1mm), 23°30'S, 153°04'E, 540m, *Craigmin* Survey, Stn 7, trawled, QFS, 20.09.1980; QMW28062, ♂ (19.5mm), 22°36.7'S, 154°14.0'E, 522m, *Craigmin* Survey, Stn 25, QFS, 4.10.1980; QMW10086, 2 ♀♀ (14.4, 19.6mm), 23°30'S, 153°04'E, 540m, *Craigmin* Survey, Stn 7, QFS, 20.09.1980; QMW11223, ♀ (14.2mm), 9°52'S 144°26'E–9°53'S 144°23'E, east of Murray Isles, 480m, QFS 'G. May', 28.05.1983; QMW26761, ovig. female (20.8mm), 27°36'S, 153°36'E, SE Qld, 540m, M.V. *Iron Summer*, trawled, shot 6, P. Dutton, 29.07.1982; QMW26764, ovig. ♀ (20.2mm), 23°52'S, 153°02'E, 650m, *Southern Intruder*, trawled, shot 37, M. Dredge (QFS), 29.11.1983.

REMARKS. *Plesionika reflexa* is very close to *P. ensis* (A. Milne Edwards, 1881). According to Chace (1985), the main difference between the two forms is the posteromesial tooth on the third abdominal somite: it is reflexed dorsally in *P. reflexa* but nearly straight to recurved ventrally in *P. ensis*. Other differences are less reliable. 1) In *P. reflexa* the dactyl of the third pereiopod is typically longer than in *P. ensis*, being more than 0.25 times as long as the propodus (although Chace (1985) and Chan & Crosnier (1997) indicated that this ratio is highly variable and can range from 0.17–0.40), versus less than 0.25 times as long as propodus. 2) In *P. reflexa* the accessory distal spine on the dactyl of the third pereiopod is less than 0.25 times as long as the main terminal spine (unguis), and close to the base, whereas in *P. ensis* it is more than 0.25 as long as main terminal spine and usually more distant from the base. 3) the distolateral tooth on the antennal scale does not project as far distally in *P. reflexa* as it does in *P. ensis*.

The colouration of the two species, as shown in Chan & Crosnier (1997: figs 24, 25), is very similar, although *P. reflexa* appears more reddish than *P. ensis*.

We have based our identification on the following observations of our specimens. The posteromesial tooth on the third abdominal somite tends to recurve dorsally (Fig. 5C), although one (W11465) is straight (Fig. 5E); the dactyl of the available third pereiopods is 0.25–0.29 times as long as the propodus (Fig. 5F), the distolateral tooth on the antennal scale is less prominent (Fig. 5B), but closer to Chace's figure of *P. reflexa* (1985: fig. 49f) than to his figure of *P. ensis* (1985: fig. 50c). The accessory distal spine of the dactyl on available ambulatory pereiopods is 0.30–0.34 times as long as the propodus (Fig. 5I), which differs from the description and illustration of Chace (1985), however the illustration of Chan & Crosnier (1997: fig. 3b) based on French Polynesian material also shows a specimen with a long accessory spine on the dactyl of the third pereiopod. The rostrums of all our specimens are broken; the specimen with the longest rostrum (W10673) has 5 dorsal teeth at the base of the rostrum and 28 ventral teeth.

DISTRIBUTION. Probably widely distributed in the Indo-Pacific; bathymetric range 191–910m (Chan & Crosnier, 1997).

Plesionika semilaevis Bate, 1888

Plesionika semilaevis Bate, 1888: 644, pl. 68, fig. 3; Chace, 1985: 113, figs 51–54; Hanamura & Takeda, 1987: 116, fig. 3c, d; Ohtomi & Hayashi, 1995: 1035, fig. 1; Chan & Crosnier, 1997: 213; Davie, 2002: 350; Li & Komai, 2003: 268.

Plesionika martia var. *semilaevis*: De Man, 1920: 116 (in part).

MATERIAL. QMW10066, 3 ♂♂ (18.5, 18.5, 19.2mm), 2 ovig. ♀♀ (18.1, 19.2mm), 23°15.3'S, 154°21.7'E, 549m, *Craigmin* Survey, Stn 26, QFS, 4.10.1980; QMW10078, 8 ovig. ♀♀ (16.2–18.2mm), 23°15.3'S, 154°21.7'E, 549m, *Craigmin* Survey, Stn 26, QFS, 4.10.1980; QMW10071, 3 ovig. ♀♀ (17.3, 18.1, 19.2mm), 23°15.3'S, 154°21.7'E, 549m, *Craigmin* Survey, Stn 26, QFS, 4.10.1980; QMW10073, 1 specimen (damaged, 17.0mm), 2 pieces of abdomen, 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, shot 3, QFS, 20.09.1980; QMW10072, 2 ♂♂ (14.4, 15.5mm), 7 ovig. ♀♀ (14.6–19.6mm), 23°11'S, 153°00'E, 420m, *Craigmin* Survey, Stn 8, shot 2, QFS, 20.09.1980; QMW10076, 9 ovig. ♀♀ (damaged, (available) 15.3–19.7mm), 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, QFS, 20.09.1980; QMW10079, 3 ovig. ♀♀ (15.8, 18.0, 18.7mm), 23°30'S, 153°04'E, 540m, *Craigmin* Survey, Stn 7, trawled, QFS, 20.09.1980; QMW10069, 3 ovig. ♀♀ (16.7, 17.5, 20.0mm), 3 specimens (damaged), 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, QFS, 20.09.1980; QMW10065, 2 ♂♂ (15.5, 17.8mm), 3 ovig. ♀♀ (16.5, 18.5, 19.2mm), 23°28'S, 153°19'E, 562m, *Craigmin* Survey, Stn 6, shot 3, QFS, 20.09.1980; QMW10068, ovig. ♀ (18.1mm), 22°36.7'S, 154°14.0'E, 522m, *Craigmin* Survey, Stn 25, QFS, 4.10.1980; QMW10074, 6 ♂♂ (17.0–19.0mm), 5 ovig. ♀♀ (17.0–18.7mm), 22°36.7'S, 154°14.0'E, 522m, *Craigmin* Survey, Stn 25, QFS, 4.10.1980; QMW10075, 2 specimens (damaged), 22°10'S, 154°10'E, 570m, *Craigmin* Survey, Stn 9, QFS, 21.09.1980; QMW28051, ovig. ♀ (18.3mm), 23°15'S, 153°45'E, 415m, *Southern Intruder*, trawled, shot 3, M. Dredge (QFS), 6.09.1983;

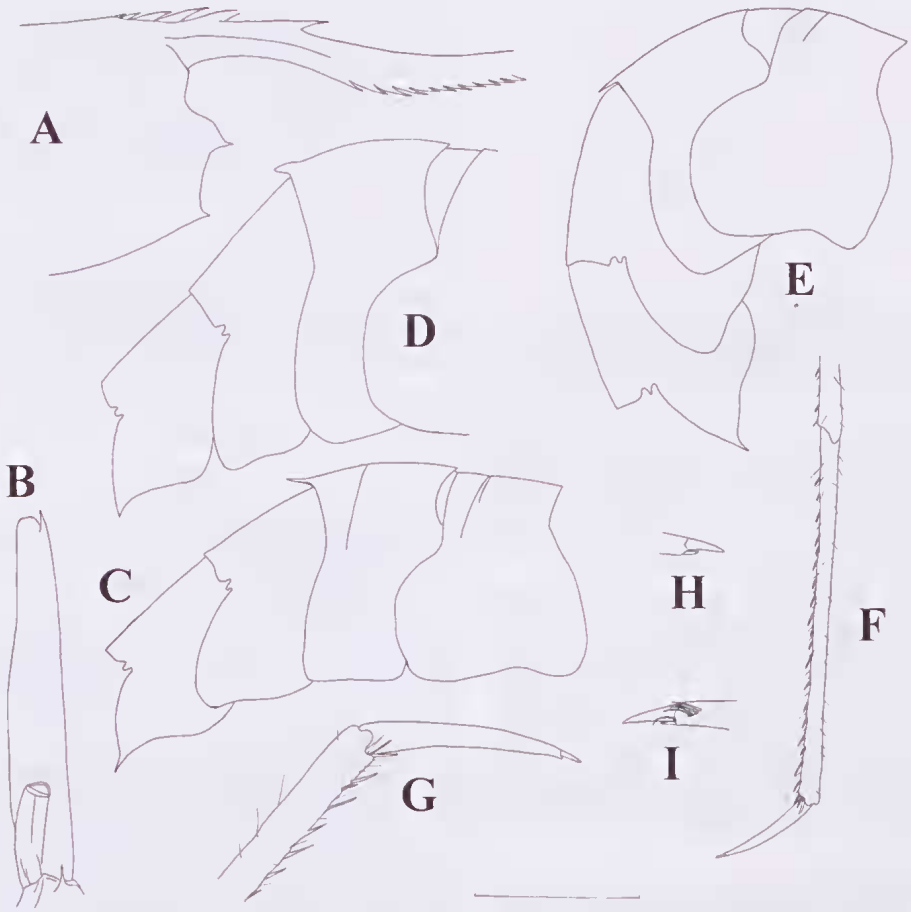

FIG. 5. *Plesionika reflexa* Chace, 1985. A, anterior carapace, lateral view; B, left scaphocerite, ventral view; C–E, second to fifth abdominal somites, lateral view; F, propodus and dactyl of left third pereiopod; G, same, dactyl and distal propodus; H, I, same, distal dactyl; A–C, F–H, QMW11411, ovig. female; D, QMW11321, male; E, I, QMW11465, ovig. female, scale = 8.5mm (A–E); 4mm (F); 2mm (G); 1mm (H, I).

QMW11410, ♀ (23.3mm), 3 ovig. ♀♀ (18.3mm), 23°34'S, 153°16'E, 650m, *Southern Intruder*, trawled, shot 5, M. Dredge (QFS), 9.08.1983; QMW11310, 3 male (15.5, 15.9, 17.2mm), 6 ovig. ♀♀ (16.0–19.6mm), 23°45'S, 153°07'E, 550m, *Southern Intruder*, trawled, shot 3, P. Davie, 29.11.1983; QMW11311, 2 male (16.0, 18.8mm), 4 ovig. ♀♀ (18.0–20.1mm), 23°52'S, 153°02'E, 650m, *Southern Intruder*, trawled, shot 2, P. Davie, 29.11.1983; QMW11289, 10 ovig. ♀♀ (15.2–19.3mm), 23°21'S, 153°23'E, 410m, *Southern Intruder*, trawled, shot 41, P. Davie, 30.11.1983; QMW11288, 7 ♂♂ (14.1–18.0mm), ♀ (19.1mm), 9 ovig. ♀♀ (15.5–18.4mm), 23°22'S, 152°45'E, 350–310m, *Southern Intruder*, trawled, shot 42, P. Davie, 30.11.1983; QMW18030, 2 ♂♂ (21.2, 22.2mm), 17°01.8'S, 151°20.1'E, off Cairns, Qld, 802–792m, R.V. *Soela*, trawled, CSIRO, 6.12.1985; QMW14914, 1 juvenile (14.8mm), 22°13.00'S, 153°52.53'E, M.V. *Iron Summer*, Shot 1, 590m, R. Morton, 9.05.1983; QMW16209, 2 ovig. ♀♀ (20.4, 21.0mm), 15°58'S, 149°56'E, 590m, M.V. *Valkyrie Voyager*, trawled, G. Williams, 30.06.1989; QMW26763, ♂ (16.2mm), 27°13' to 27°22'S, 153°00'E, SE Qld, 500–540m, M.V. *Iron Summer*, trawled, M. Holmes, 2–3.10.1982; QMW26739, 3 ♂♂ (14.7, 15.1, 15.4mm), ovig. ♀ (15.0mm), 27°45.6'S, 153°58'E, SE Qld, 540m, M.V. *Iron Summer*, trawled, shot 7, P. Dutton, 29.07.1982; QMW26740, ♂ (13.8mm), 27°18'S, 153°54'E, SE Qld, 540m, M.V. *Iron Summer*, trawled, shot 5, G. Smith and J. Burke, 13.08.1982; QMW26756, ♂ (14.1mm), ovig. ♀ (17.4mm), 27°36'S, 153°36'E, SE Qld, 540m, M.V. *Iron Summer*, trawled, shot 6, P. Dutton, 29.07.1982; QMW26757, ♂ (14.8mm), 27°55'S, 154°01'E, SE Qld, 555m, M.V. *Iron Summer*, trawled, shot 4, Q. F., 30.11.1982; QMW26754, ovig. ♀ (16.5mm), 27°59.37'S, 154°00.12'E, SE Qld, 590m, M.V. *Iron*

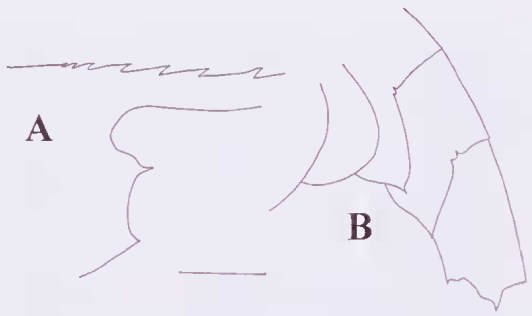

FIG. 6. *Plesionika* sp., QMW10086, ovig. female. A, anterior carapace, lateral view; B, fourth to sixth abdominal somites, lateral view, scale = 5mm.

Summer, trawled, shot 2, R. Morton, 31.03.1983; QMW26755, 3 ♂♂ (13.7, 15.3, 17.2mm), 28°01'S, 153°59'E, SE Qld, 550m, M.V. *Iron Summer*, trawled, shot 1, M. Potter, 1.08.1982; QMW26741, 2 ovig. ♀♀ (27.7, 28.4mm), 27°13' to 27°22'S, 153°53'E, 500–540m, M.V. *Iron Summer*, 2–3.10.1982.

REMARKS. *Plesionika semilaevis* belongs to the *P. martia* species-group (Forest and Holthuis, 1997) which can be difficult to identify. The present specimens have the posterior margin of the orbit noticeably inclined posterodorsally, and the exopods of the third pleopods relatively short (0.47–0.66 times as long as the carapace). These characters best match the definition of *P. semilaevis* by Chace (1985) and Hanamura & Takeda (1987).

DISTRIBUTION. Philippines, Indonesia, South and East China Seas, Japan and Australia. While not previously identified from Queensland waters, it has been recorded from further south off NSW. Bathymetric range: 176–700m.

Plesionika sindoi (Rathbun, 1906)

Pandalus sindoi Rathbun, 1906: 915, pl. 21, fig. 4.
Plesionika Sindoi: De Man, 1920: 126, pl. 11, fig. 27–27d, pl. 12, fig. 27e.
Plesionika ocellus: Chace, 1985: 90, fig. 40.
Plesionika sindoi: Poupin, 1996, pl. 5c; Chan & Crosnier, 1997: 216, figs 17, 36–37; Li & Komai, 2003: 268–269.

MATERIAL. QMW26743, 2 ♂♂ (12.0, 12.4mm), 3 ovig. ♀♀ (11.0, 13.4, 13.5mm), CSIRO Cr. 186, Stn 73, 20.01.1986; QMW26744, ♂ (10.9mm), CSIRO Cr. 186, Stn 55, 17.01.1986.

REMARKS. The present species is close to *P. ocellus* Bate, 1888, the important differenee between the two species is the posterolateral angle of the fourth abdominal somite, which is rounded in *P. sindoi* and denticulate in *P. ocellus*. In our material, 2 males and 2 ovigerous females have both sides rounded, 1 ovigerous female (cl. 11.0mm) has the right side rounded and the left side denticulate, while another male (cl. 10.9mm) has both sides denticulate. It is not impossible that the two speeies are identical. Here we identify our material as *P. sindoi* as four of the six specimens have a denticulate posterolateral angle on both sides of the fourth abdominal somite.

DISTRIBUTION. Known with certainly from Japan, South China Sea, Philippines, Indonesia, Hawaii, French Polynesia and Australia. The present specimens represent a new Australian record. Bathymetric range: 122–800m.

Plesionika sp.
(Fig. 6)

MATERIAL. QMW10086, ovig. ♀ (17.2mm), 22°56.1'S, 152°32.2'E, 144m, *Craigmin* Survey, Stn 21, Shot 9, dredge, QFS, 3.10.1980.

REMARKS. The rostrum and telson of this specimen are damaged, and most of the pereiopods are missing. The rostrum has three small dorsal teeth arising behind the level of orbital margin, with a basal suture on the posteriormost tooth (Fig. 6A); the fourth and fifth abdominal somites have a marginal tooth on the pleuron (Fig. 6B); the anterior four pereiopods have epipods; the right second pereiopod is present and has 31 carpal articles. It looks most similar to *Plesionika binoculus* (Bate, 1888), but that species has 5 basally articulated dorsal rostral teeth behind the orbital margin. Additional material from this locality will be needed before an accurate identification can be made.

Procletes levicarina (Bate, 1888)

Dorodotes levicarina Bate, 1888: 680.
Procletes biangulatus Bate, 1888: 884
Heterocarpus (Heterocarpoides) levicarina: De Man, 1920: 110, 178, pl. 15, fig. 44–44f; Kemp, 1925: 275.
Heterocarpoides levicarina: Calman, 1939: 207; Holthuis, 1955: 126, fig. 88b; Chace, 1985: 16, figs 11, 12.
Heterocarpus (Heterocarpoides) glabrus Zarenkov, 1971: 193, figs 4 (16–27).
Heterocarpus (Procletes) levicarina Menon, 1972: 382, figs 4–10.
Procletes levicarina: Holthuis, 1993: 278, fig. 277; Davie, 2002: 351; Li & Komai, 2003: 271.

MATERIAL. QMW26773, ovig. ♀ (13.7mm), 18°07'S, 147°11'E, 250m, *Soela*, Stn 96, P. Davie, 9.12.1985; QMW26772, ovig. ♀ (12.4mm), 18°00.6'S 147°02.2'E, CSIRO, Cr. 0186, Stn 41, 216-220m, 15.01.1986.

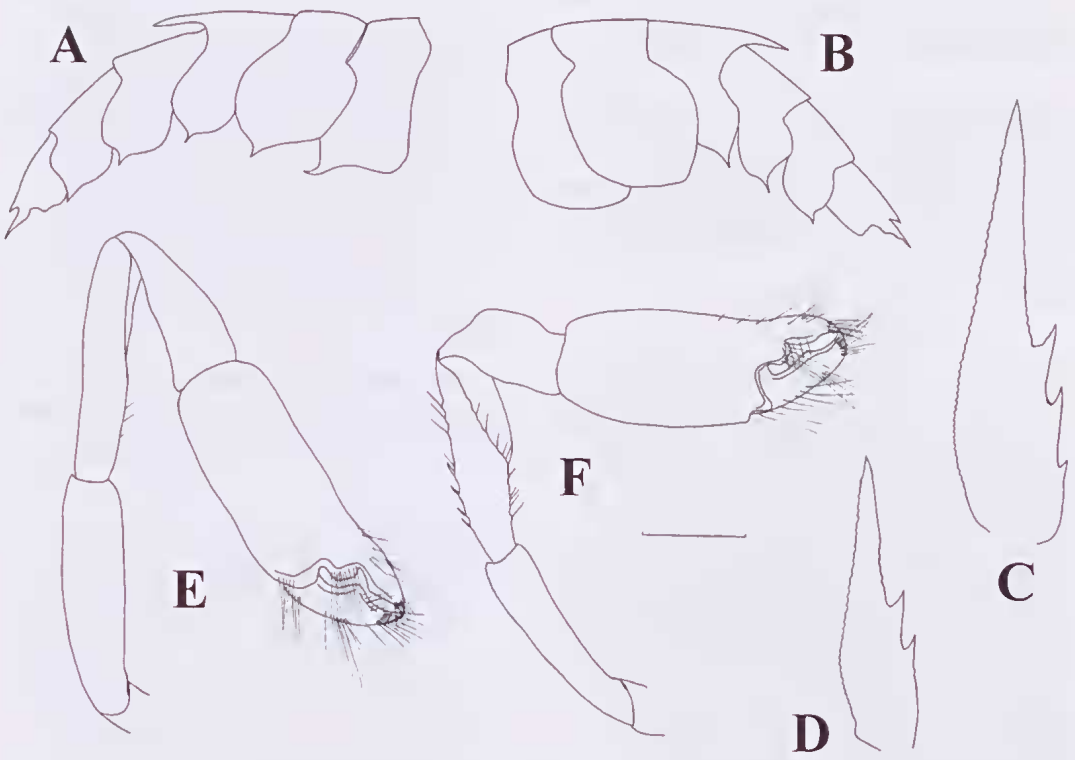

FIG. 7. *Thalassocaris crinita* (Dana, 1852a), A, B, abdomen, lateral view; C, D, right scaphocerite, dorsal view; E, F, right second pereiopod; A, C, E, QMW20717, female; B, F, QMW25845, male; D, QMW25858, male, scale = 2mm (A, B); 1mm (C–F).

DISTRIBUTION. Red Sea to Indonesia, South China Sea, Philippines, Australia and Japan. Bathymetric range: 14–393m.

Family Thalassocarididae

Thalassocaris crinita (Dana, 1852a)
(Fig. 7)

Regulus crinitus Dana, 1852a: 27; 1852b: 599; 1855: pl. 39: fig. 6a–h.

Thalassocaris crinita: Balss, 1914: 28; De Man, 1920: 95, pl. 9: figs 22–22o; Menon & Williamson, 1971: 33, figs 1b, 3, 5b, 6c, d, 10a, b, 11j–r, 13; Chace, 1985: 7, figs 3–5; Hanamura, 1987: 30, fig. 13; Davie, 2002: 380; Li & Komai, 2003: 258.

MATERIAL. QMW20726, ♂ (4.9mm), 16°45.5'S, 145°58.2'E, Green Island, NE Qld, sublittoral, 3m, seagrass (*Halodule univervis*, *Cymodocea serrulata*), sand/shell, Stn UNKN31, L. McKenzie, 27.03.1990; QMW20727, ♀ (5.3mm), 16°45.5'S, 145°58.2'E, Green Island, NE Qld, sublittoral, 3m, seagrass (*Halodule univervis*, *Cymodocea serrulata*), sand/shell, Stn UNKN31, L. McKenzie, 27.03.1990; QMW20728, ovig. ♀ (5.2mm), 16°45.5'S, 145°58.2'E, Green Island, NE Qld, sublittoral, 3m, seagrass (*Halodule univervis*, *Cymodocea serrulata*), sand/shell, Stn UNKN31, L. McKenzie, 27.03.1990; QMW20717, ♀ (5.2mm), 14°40'S, 145°28'E, Lizard Island, NE Qld, sublittoral, 3m, Stn UNKN31, netted, L. Squire, 3.12.1988; QMW25845, ♂ (5.6mm), 21°42.2'S, 151°44.3'E, Prong #2 Reef, Great Barrier Reef, ME Qld, Stn PR-2, 3–6m, SCUBA, coral cave with fine silt floor, J. Johnson, 11.03.2000; QMW25846, ♂ (5.5mm), 21°42.2'S, 151°44.3'E, Prong #2 Reef, Great Barrier Reef, ME Qld, Stn PR-2, 3–5m, SCUBA, cave, *Acropora*, J. Johnson and A. Gill, 11.03.2000; QMW25858, ♂ (3.2mm), 18°28'S, 146°52'E, Rib Reef off Townsville, NE Qld, Stn PR-2, 3–5m, light trap, 3m, S. Cook, RV *James Kirby*, 25.10.1998.

REMARKS. These specimens agree well with the descriptions of Menon & Williamson (1971) and Chace (1985), except that the pereiopods at most over-reach the rostrum only by the fingers. The shape of the abdominal pleura is distinctly sexually dimorphic: in males the pleura of the first to fifth abdominal somites are pointed (Fig. 7A), but in females those of the first and second abdominal somites are rounded (Fig. 7B).

The antennal scale typically has 3 lateral teeth (Fig. 7C), but one small, perhaps juvenile, male (QMW25858) has only 2 lateral teeth (Fig. 7D).

DISTRIBUTION. Red Sea to Indonesia, Philippines, Japan, Australia, Marshall Islands. Within Australia previously only reported from off NW Australia, so the present specimens represent a new distributional record for Queensland and eastern Australia. Bathymetric range: less than 100m.

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